

ERICA Product Details

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Title:

Application Software Case Studies in FY05 for the Mathematical, Information and Computational Sciences Office of the U.S. Department of Energy

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	The report presents the problems and work conducted to satisfy the Department of Energy's (DOE) Office of Mathematical, Information, and Computational Sciences program's FY05 software effectiveness measure, part of it's annual Office of Management and Budget (OMB) program goal entered into DOE's Performance Measure Manager (PMM) system at the end of the FY, for the following science and engineering applications: S3D INCITE (solves the compressible Navier-Stokes, total energy, and species continuity conservation equations in multi-dimensions), AORSA (All-ORders Spectral

Description:	Algorithms, solves the wave equation for radio frequency heating in multi-dimensional plasmas with no restriction on wave length relative to orbit size and no limit on the number of cyclotronic harmonics), CCSM (Community Climate System Model; models the earth's climate dynamics with the coupling of the atmosphere, sea ice, land, and ocean components), Omega3P (solves Maxwell's equations in the time and frequency domain with or without particles to study and design various cavities for the International Linear Collider), LAMMPS (Large-scale Atomic/Molecular Massively Parallel Simulator; a classical molecular dynamics simulation code), and S3D SciDAC (S3D to study turbulent combustion chemistry processes).
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